

FE 523 - INVESTMENT ANALYSIS AND PORTFOLIO THEORY

FALL 2022

INSTRUCTOR

Cenk C. KARAHAN

CLASS MEETING TIME

Mondays 7 – 10 pm

CLASSROOM

VYKM 3

EMAIL

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OFFICE LOCATION

IB 305

OFFICE HOURS

By appointment only

COURSE OVERVIEW

An introduction to quantitative investment analysis and portfolio management. The course will review various assets classes (equity, fixed income, derivatives) and their use for optimal portfolio and risk management purposes. The topics will include conventional approaches such as risk, return, market equilibrium, efficiency, CAPM, factor models as well as more recent developments in behavioral finance, statistical arbitrage and algorithmic trading. Applications of the portfolio management concepts will include individual quantitative assignments and case studies.

READING AND TEXTBOOK

Required articles and case studies will be provided as the semester progresses.

The Wall Street Journal, Financial Times, the Economist.

Although not required, the following books are recommended as reference.

- Investments (9th edition - Global), *Bodie, Cane, Marcus*
- The Econometrics of Financial Markets, *Campbell, Lo, MacKinlay*
- Quantitative Equity Portfolio Management, *Qian, Hua, Sorensen*

GRADING

- **Homework (40-50%)** – Assignments to test the theory and empirical evidence relevant for investing through quantitative analysis.
- **Case Studies (10-20%)** – Individually written analyses of 2-3 case studies.
- **Participation (10%)** – Contribution to discussions during class meetings.
- **Final (30%)** – Take-home final exam.

Attendance to the lectures in person is mandatory and of utmost importance. Your presence and active participation in class discussions are expected and strongly encouraged.

A working knowledge of **Excel** and **MATLAB/R/Python** programming assumed for quantitative assignments.

COURSE CONTENTS

Below is a tentative outline of the topics that will be covered throughout the semester.

• Introduction (1 week)

An introduction to financial markets, different asset classes and financial instruments. A brief look at various institutional investors (mutual funds, hedge funds, pension funds) and their investment strategies.

• Portfolio Theory and Practice (2 weeks)

The concepts of risk aversion and risk-return tradeoff. Empirical analysis of historical data. Utility maximization, diversification, optimal allocation of funds.

• Equilibrium Models in Capital Markets (2 weeks)

Efficient frontier, Capital Asset Pricing Model (CAPM), Fama-French (FF) and other multifactor models. Empirical tests of these asset pricing models.

• Market (In)Efficiency and Behavioral Finance (2 weeks)

Concept of market efficiency and testing of this hypothesis. Technical and fundamental analysis. Anomalies and behavioral approach to asset pricing.

• Trading Strategies (2 weeks)

Statistical arbitrage, algorithmic trading, high frequency trading etc.

• Options, Futures and Other Derivatives (2 weeks)

Review of basic derivative securities and their practical use in investment, speculation and hedging. The Greeks, implied volatility and volatility smiles.
